Claims

What is claimed is:

1.   A method of determining utilization of channel
components of a computing environment, said method
comprising:

obtaining measurement data for a selected
component of a channel, said channel comprising a
plurality of components; and

using said measurement data to determine
utilization of said selected component.

2.   The method of claim 1, wherein said obtaining
comprises obtaining measurement data for multiple components
of said plurality of components, and wherein said using
comprises using said measurement data to determine
utilization for each of said multiple components.

3.   The method of claim 1, further comprising obtaining
one or more operational characteristics of said selected
component.

4.   The method of claim 3, wherein said using further
comprises employing said one or more operational
characteristics to determine said utilization of said
selected component.

5. The method of claim 4, wherein said obtaining measurement data comprises obtaining said measurement data at a plurality of predefined intervals, and wherein said using comprises:

determining an average change in the measurement data over at least two intervals of said plurality of predefined intervals; and

dividing said average change by a value of at least one of said one or more operational characteristics.

6. The method of claim 5, wherein said value is a maximum value for that operational characteristic.

7. The method of claim 3, wherein said selected component comprises an internal channel bus, and said one or more operational characteristics of said internal bus comprise a maximum number of bus cycles.

8. The method of claim 3, wherein said selected component comprises a channel processor, and said one or more operational characteristics of said channel processor comprise a maximum number of channel work units.

9. The method of claim 3, wherein said selected component comprises an external link of said channel, and said one or more operational characteristics of said external link comprise at least one of a maximum number of written data units, a maximum number of read data units, and a size of said data units.

1   10.   The method of claim 1, wherein said selected
2   component comprises one of an internal bus of said channel,
3   a channel processor and an external link of said channel.

1   11.   The method of claim 1, wherein the channel is
2   associated with a logical partition of said computing
3   environment involved in the determining utilization, and
4   wherein the measurement data comprises data representative
5   of use of said selected component by said logical partition.

1   12.   The method of claim 11, wherein the measurement
2   data is further representative of use of said selected
3   component by one or more other logical partitions of said
4   computing environment.

1   13.   The method of claim 1, wherein said obtaining
2   measurement data is performed using a channel path
3   measurement facility executing in a first mode.

1   14.   The method of claim 13, wherein another channel
2   path measurement facility is activated within said computing
3   environment in a second mode, and wherein said channel path
4   measurement facility in said first mode and said channel
5   path measurement facility in said second mode are
6   concurrently active.

15.   A method of obtaining information associated with
channel components of a computing environment, said method
comprising:

    selecting a channel within said computing
environment to be monitored, said channel comprising a
plurality of components; and

    obtaining data on one or more components of said
plurality of components.

16.   The method of claim 15, wherein said obtaining
data comprises obtaining one or more operational
characteristics of said one or more components.

17.   The method of claim 16, wherein at least one of
said one or more operational characteristics comprises a
maximal value of said operational characteristic.

18.   The method of claim 15, wherein said obtaining
data comprises obtaining measurement data usable in
determining utilization of said one or more components.

19.   The method of claim 15, wherein said obtaining
data comprises:

    obtaining one or more operational characteristics
of said one or more components; and

    obtaining measurement data for said one or more
components, wherein said one or more operational
characteristics and said measurement data are used to
determine utilization of said one or more components.

1   20. A method of determining utilization of channels of
2   a computing environment, said computing environment
3   comprising a plurality of logical partitions, and said
4   method comprising:

5   obtaining measurement data for a channel, said
6   measurement data being representative of use of said
7   channel by a logical partition involved in determining
8   the utilization and representative of use by one or
9   more other logical partitions of said plurality of
10   logical partitions; and

11   using said measurement data to determine
12   utilization of the channel.

21. A system of determining utilization of channel
components of a computing environment, said system
comprising:

    means for obtaining measurement data for a
    selected component of a channel, said channel
    comprising a plurality of components; and

    means for using said measurement data to determine
    utilization of said selected component.

22. The system of claim 21, wherein said means for
obtaining comprises means for obtaining measurement data for
multiple components of said plurality of components, and
wherein said means for using comprises means for using said
measurement data to determine utilization for each of said
multiple components.

23. The system of claim 21, further comprising means
for obtaining one or more operational characteristics of
said selected component.

24. The system of claim 23, wherein said means for
using further comprises means for employing said one or more
operational characteristics to determine said utilization of
said selected component.

1   25. The system of claim 24, wherein said means for
2 obtaining measurement data comprises means for obtaining
3 said measurement data at a plurality of predefined
4 intervals, and wherein said means for using comprises:

5   means for determining an average change in the
6   measurement data over at least two intervals of said
7   plurality of predefined intervals; and

8   means for dividing said average change by a value
9   of at least one of said one or more operational
10   characteristics.

1   26. The system of claim 25, wherein said value is a
2 maximum value for that operational characteristic.

1   27. The system of claim 23, wherein said selected
2 component comprises an internal channel bus, and said one or
3 more operational characteristics of said internal bus
4 comprise a maximum number of bus cycles.

1   28. The system of claim 23, wherein said selected
2 component comprises a channel processor, and said one or
3 more operational characteristics of said channel processor
4 comprise a maximum number of channel work units.

1   29. The system of claim 23, wherein said selected
2 component comprises an external link of said channel, and
3 said one or more operational characteristics of said
4 external link comprise at least one of a maximum number of
5 written data units, a maximum number of read data units, and
6 a size of said data units.

1   30.   The system of claim 21, wherein said selected
2   component comprises one of an internal bus of said channel,
3   a channel processor and an external link of said channel.

1   31.   The system of claim 21, wherein the channel is
2   associated with a logical partition of said computing
3   environment involved in the determining utilization, and
4   wherein the measurement data comprises data representative
5   of use of said selected component by said logical partition.

1   32.   The system of claim 31, wherein the measurement
2   data is further representative of use of said selected
3   component by one or more other logical partitions of said
4   computing environment.

1   33. A system of obtaining information associated with
2 channel components of a computing environment, said system
3 comprising:

4   means for selecting a channel within said
5   computing environment to be monitored, said channel
6   comprising a plurality of components; and

7   means for obtaining data on one or more components
8   of said plurality of components.

1   34. The system of claim 33, wherein said means for
2 obtaining data comprises means for obtaining one or more
3 operational characteristics of said one or more components.

1   35. The system of claim 34, wherein at least one of
2 said one or more operational characteristics comprises a
3 maximal value of said operational characteristic.

1   36. The system of claim 33, wherein said means for
2 obtaining data comprises means for obtaining measurement
3 data usable in determining utilization of said one or more
4 components.

1   37. The system of claim 33, wherein said means for
2   obtaining data comprises:

3   means for obtaining one or more operational
4   characteristics of said one or more components; and

5   means for obtaining measurement data for said one
6   or more components, wherein said one or more
7   operational characteristics and said measurement data
8   are used to determine utilization of said one or more
9   components.

1   38. A system of determining utilization of channels of
2   a computing environment, said computing environment
3   comprising a plurality of logical partitions, and said
4   system comprising:

5   means for obtaining measurement data for a
6   channel, said measurement data being representative of
7   use of said channel by a logical partition involved in
8   determining the utilization and representative of use
9   by one or more other logical partitions of said
10   plurality of logical partitions; and

11   means for using said measurement data to determine
12   utilization of the channel.

1   39.   A system of determining utilization of channel
2   components of a computing environment, said system
3   comprising:

4   at least one processor adapted to obtain
5   measurement data for a selected component of a channel,
6   said channel comprising a plurality of components; and

7   at least one processor adapted to use said
8   measurement data to determine utilization of said
9   selected component.

1   40.   A system of obtaining information associated with
2   channel components of a computing environment, said system
3   comprising:

4   a channel comprising a plurality of components;
5   and

6   at least one processor adapted to obtain data on
7   one or more components of said plurality of components.

1   41. A system of determining utilization of channels of

2 a computing environment, said computing environment

3 comprising a plurality of logical partitions, and said

4 system comprising:

5   at least one processor adapted to obtain

6 measurement data for a channel, said measurement data

7 being representative of use of said channel by a

8 logical partition involved in determining the

9 utilization and representative of use by one or more

10 other logical partitions of said plurality of logical

11 partitions; and

12   at least one processor adapted to use said

13 measurement data to determine utilization of the

14 channel.

1   42.   At least one program storage device readable by a
2   machine, tangibly embodying at least one program of
3   instructions executable by the machine to perform a method
4   of determining utilization of channel components of a
5   computing environment, said method comprising:

6   obtaining measurement data for a selected
7   component of a channel, said channel comprising a
8   plurality of components; and

9   using said measurement data to determine
10   utilization of said selected component.

1   43.   The at least one program storage device of claim
2   42, wherein said obtaining comprises obtaining measurement
3   data for multiple components of said plurality of
4   components, and wherein said using comprises using said
5   measurement data to determine utilization for each of said
6   multiple components.

1   44.   The at least one program storage device of claim
2   42, wherein said method further comprises obtaining one or
3   more operational characteristics of said selected component.

1   45.   The at least one program storage device of claim
2   44, wherein said using further comprises employing said one
3   or more operational characteristics to determine said
4   utilization of said selected component.

1   46. The at least one program storage device of claim
2   45, wherein said obtaining measurement data comprises
3   obtaining said measurement data at a plurality of predefined
4   intervals, and wherein said using comprises:

5   determining an average change in the measurement
6   data over at least two intervals of said plurality of
7   predefined intervals; and

8   dividing said average change by a value of at
9   least one of said one or more operational
10   characteristics.

1   47. The at least one program storage device of claim
2   42, wherein said selected component comprises one of an
3   internal bus of said channel, a channel processor and an
4   external link of said channel.

1   48. The at least one program storage device of claim
2   42, wherein the channel is associated with a logical
3   partition of said computing environment involved in the
4   determining utilization, and wherein the measurement data
5   comprises data representative of use of said selected
6   component by said logical partition.

1   49. The at least one program storage device of claim
2   48, wherein the measurement data is further representative
3   of use of said selected component by one or more other
4   logical partitions of said computing environment.

50. An article of manufacture, comprising:

at least one computer usable medium having computer readable program code means embodied therein for causing the obtaining of information associated with channel components of a computing environment, the computer readable program code means in the article of manufacture comprising:

computer readable program code means for causing a computer to select a channel within said computing environment to be monitored, said channel comprising a plurality of components; and

computer readable program code means for causing a computer to obtain data on one or more components of said plurality of components.

51. The article of manufacture of claim 50, wherein said computer readable program code means for causing a computer to obtain data comprises computer readable program code means for causing a computer to obtain one or more operational characteristics of said one or more components.

52. The article of manufacture of claim 50, wherein said computer readable program code means for causing a computer to obtain data comprises computer readable program code means for causing a computer to obtain measurement data usable in determining utilization of said one or more components.

1   53.   The article of manufacture of claim 50, wherein
2 said computer readable program code means for causing a
3 computer to obtain data comprises:

4   computer readable program code means for causing a
5 computer to obtain one or more operational
6 characteristics of said one or more components; and

7   computer readable program code means for causing a
8 computer to obtain measurement data for said one or
9 more components, wherein said one or more operational
10 characteristics and said measurement data are used to
11 determine utilization of said one or more components.

1   54.   At least one program storage device readable by a

2   machine, tangibly embodying at least one program of

3   instructions executable by the machine to perform a method

4   of determining utilization of channels of a computing

5   environment, said computing environment comprising a

6   plurality of logical partitions, and said method comprising:

7   obtaining measurement data for a channel, said

8   measurement data being representative of use of said

9   channel by a logical partition involved in determining

10   the utilization and representative of use by one or

11   more other logical partitions of said plurality of

12   logical partitions; and

13   using said measurement data to determine

14   utilization of the channel.

*   *   *   *   *